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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/609,468 | <b>Applicant(s)</b><br>KODATE ET AL. |  |
|                              | <b>Examiner</b><br>Jeff Piziali      | <b>Art Unit</b><br>2629              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8,13-18,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,13-18,21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. The drawings were received on 10 February 2006. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1, 2, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the *Instant Application's Description of Prior Art* in view of *Kim et al (US 6,097,457 A)*.

Regarding claim 1, the Instant Application's Description of Prior Art discloses an image display element, comprising: a plurality of data lines to which display signals are applied, the data lines being embedded in a substrate; a plurality of scan lines to which scan signals are applied, the scan lines being embedded in the substrate (see Page 1, Lines 10-25); a first wire [Fig. 6A; 32] having a surface which is exposed, the first wire being electrically connected to one of the scan lines; and a second wire [Fig. 6A; 33] having a surface which is exposed, wherein the narrowest distance between the first wire and the second wire but not including the first and second wire is less than  $5\mu\text{m}$  (see Page 13, Line 8 - Page 14, Line 22).

The Instant Application's Description of Prior Art does not expressly disclose the narrowest distance between the first wire and the second wire but not including the first and second wire is more than or equal to  $5\mu\text{m}$ .

However, Kim does teach the narrowest distance [Fig. 6;  $W_2$ ] between a first wire [Fig. 6; 31-1] and a second wire [Fig. 6; 31-2] but not including the first and second wire is more than or equal to  $5\mu\text{m}$  (see Column 4, Lines 37-50).

The Instant Application's Description of Prior Art and Kim are analogous art, because they are both from the shared field of liquid crystal display devices.

Firstly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, so as to minimize signal distortion and delay in the resultant display.

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Secondly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results (e.g., increasing spacing between electrical wires reduces signal crosstalk) to one of ordinary skill in the art at the time of the invention.

Thirdly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because the substitution of one known wire distance for another would have yielded predictable results (e.g., increasing spacing between electrical wires reduces signal crosstalk) to one of ordinary skill in the art at the time of the invention.

Fourthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because the technique for improving (e.g., increasing spacing between electrical wires reduces signal crosstalk) a particular class of devices (e.g., wire structures / arrangements) was part of the ordinary skill in the art, in view of the teaching of the technique for improvement in other situations (e.g., Kim's extended wire distances).

Fifthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because this particular known technique (i.e., extending

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wire distances more than or equal to  $5\mu\text{m}$ ) was recognized as part of the ordinary capabilities of one skilled in the art.

Sixthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because a person of ordinary skill has good reason (e.g., increasing spacing between electrical wires reduces signal crosstalk) to pursue the known options within his or her technical grasp (i.e., setting wire distances as preferred -- to more than or equal to  $5\mu\text{m}$ , for example). If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

Seventhly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because design incentives (e.g., increasing spacing between electrical wires reduces signal crosstalk) or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge (i.e., setting wire distances to more than or equal to  $5\mu\text{m}$ ) in a predictable manner.

Regarding claim 2, the Instant Application's Description of Prior Art discloses a potential of the second wire is substantially equal to a potential of a scan line other than the one scan line (see Page 13, Lines 8-21).

Regarding claim 13, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, the Instant Application's Description of Prior Art discloses a data line driving circuit and a scan line driving circuit (see Page 1, Lines 10-25).

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claim 2.

6. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the *Instant Application's Description of Prior Art* and *Kim et al (US 6,097,457 A)* as applied to claims 1 and 13 respectively above, and further in view of *Kwon (US 6,486,930 B1)*.

Regarding claim 3, the Instant Application's Description of Prior Art does not expressly disclose any particular display element arrangement of pixel electrodes and switching devices. However, Kwon does disclose a first pixel electrode [Fig. 5A; 71c] and a second pixel electrode [Fig. 5A; 73c] that are supplied with display signals from one of the data lines [Fig. 5A; D1]; a first switching device [Fig. 5A; 71b] that controls a supply of the display signal in the one data line, wherein the first switching device is electrically connected between the one data line and the first pixel electrode and that has a gate electrode; a second switching device [Fig. 5A; 71a] that is electrically connected between the gate electrode of the first switching device and one scan line [Fig. 5A; G1]; and a third switching device [Fig. 5A; 73] that is connected to the one data line and that controls a supply of the display signal to the second pixel electrode (see Column 3, Line 59 - Column 4, Line 36).

The Instant Application's Description of Prior Art and Kwon are analogous art, because they are both from the shared field of active matrix liquid crystal display devices. Therefore, it

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would have been obvious to one of ordinary skill in the art at the time of invention to use the substrate fabrication techniques of the Instant Application's Description of Prior Art to manufacture Kwon's multiplexed image structure, so as to reduce the necessary number of data lines.

Regarding claim 15, this claim is rejected by the reasoning applied in rejecting claim 3; furthermore, Kwon discloses a first pixel electrode [Fig. 5A; 73c] and a second pixel electrode [Fig. 5A; 71c] that are supplied with a display signal from a same data line [Fig. 5A; D1]; a first switching device [Fig. 5A; 73] that controls the supply of the display signal from the data line to the first pixel electrode, and that is driven based on a scan signal supplied from a first scan line [Fig. 5A; G1]; a second switching device [Fig. 5A; 71b] that controls a supply of the display signal from the data line to the second pixel electrode, and that is driven based on a scan signal supplied from a second scan line [Fig. 5A; G2] subsequent to the first scan line; and a third switching device [Fig. 5A; 71a] that is driven based on the scan signal supplied from the first scan line, and that controls ON and OFF of the second switching device (see Column 3, Line 59 - Column 4, Line 36).

7. Claims 4-6, 16, 17, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the *Instant Application's Description of Prior Art* in view of *Watanabe et al (US 5,150,239 A)*.

Regarding claim 4, the Instant Application's Description of Prior Art discloses an image display element/device, comprising: a plurality of data lines to which display signals are applied,



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the data lines being embedded in a substrate; a plurality of scan lines to which scan signals are applied, the scan lines being embedded in the substrate (see Page 1, Lines 10-25); a first wire [Fig. 6A; 32] having a surface which is exposed, the first wire being electrically connected to one of the scan lines; and a second wire [Fig. 6A; 33] having a surface which is exposed (see Page 13, Line 8 - Page 14, Line 22), the second wire [Fig. 6A; 33] being arranged at a first distance of less than or equal to  $10\mu\text{m}$  of the first wire [Fig. 6A; 32]; a liquid crystal layer [Fig. 10; 50] disposed between the exposed surface of the first wire [Fig. 10; the surface portion of wire 47 exposed/directly contacting spacer 51] and the exposed surface of the second wire; and an insulator [Fig. 10; 51] in direct physical contact with the entire exposed surface of at least one of the first and second wires [Fig. 10; 47], wherein the entire exposed surface of the at least one of the first and second wires is isolated from the liquid crystal layer by the insulator (see Fig. 10; Page 21, Line 9 - Page 22, Line 14).

The Instant Application's Description of Prior Art does not expressly disclose that no portion of the at least one of the first and second wires is in direct physical contact with the liquid crystal layer.

However, Watanabe does disclose an insulator [Fig. 1; 104] in direct physical contact with the entire exposed surface of at least one of a first and second wire [Fig. 1; 102, 103] such that no portion of the at least one of the first and second wires is in direct physical contact with a liquid crystal layer [Fig. 1; 107] (see Column 3, Lines 17-25).

The Instant Application's Description of Prior Art and Watanabe are analogous art, because they are both from the shared field of liquid crystal display devices.

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Firstly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, so as to provide the entire panel uniformly with a prescribed gap and for fixing the alignment of the pair of substrates.

Secondly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results (e.g., providing insulation around wires reduces signal crosstalk and leakage) to one of ordinary skill in the art at the time of the invention.

Thirdly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, because the substitution of one known insulator layer for another would have yielded predictable results (e.g., providing insulation around wires reduces signal crosstalk and leakage) to one of ordinary skill in the art at the time of the invention.

Fourthly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art,

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because the technique for improving (e.g., providing insulation around wires reduces signal crosstalk and leakage) a particular class of devices (e.g., wire structures / arrangements) was part of the ordinary skill in the art, in view of the teaching of the technique for improvement in other situations (e.g., Watanabe's wire insulation).

Fifthly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, because this particular known technique (e.g., providing insulation around wires reduces signal crosstalk and leakage) was recognized as part of the ordinary capabilities of one skilled in the art.

Sixthly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, because a person of ordinary skill has good reason (e.g., providing insulation around wires reduces signal crosstalk and leakage) to pursue the known options within his or her technical grasp (i.e., using additional amounts, sizes, shapes of insulation, for example). If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

Seventhly, it would have been obvious to one of ordinary skill in the art at the time of invention to place Watanabe's insulator in direct physical contact with the entire exposed surface of at least one of a first and second wire of the Instant Application's Description of Prior Art, because design incentives (e.g., providing insulation around wires reduces signal crosstalk and

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leakage) or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge in a predictable manner.

Regarding claim 5, the Instant Application's Description of Prior Art discloses a potential of the second wire is substantially equal to a potential of a scan line other than the one scan line (see Page 13, Lines 8-21).

Regarding claim 6, the Instant Application's Description of Prior Art discloses a counter substrate [Fig. 10; 49] that is disposed opposite to the substrate; wherein the counter substrate is disposed at a second distance from the substrate; and wherein the insulator is a spacer [Fig. 10; 51] that prescribes the second distance (see Page 21, Line 9 - Page 22, Line 14).

Regarding claim 16, this claim is rejected by the reasoning applied in rejecting claim 4; furthermore, the Instant Application's Description of Prior Art discloses a data line driving circuit and a scan line driving circuit (see Page 1, Lines 10-25).

Regarding claim 17, the Instant Application's Description of Prior Art discloses a potential of the second wire is substantially equal to a potential of a scan line other than the one scan line (see Page 13, Lines 8-21).

Regarding claim 21, the Instant Application's Description of Prior Art discloses the first distance from the second wire to the first wire is less than or equal to  $5\mu\text{m}$  [wherein the distance

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measurement is taken from the left-side edge of the first wire to the right-side edge of the second wire, for instance] (see Page 13, Line 8 - Page 14, Line 22).

Regarding claim 22, this claim is rejected by the reasoning applied in rejecting claim 21.

8. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the *Instant Application's Description of Prior Art* and *Watanabe et al (US 5,150,239 A)* as applied to claims 4 and 16 above, and further in view of *Kwon (US 6,486,930 B1)*.

Regarding claim 8, the Instant Application's Description of Prior Art does not expressly disclose any particular display element arrangement of pixel electrodes and switching devices. However, Kwon does disclose a first pixel electrode [Fig. 5A; 71c] and a second pixel electrode [Fig. 5A; 73c] that are supplied with display signals from one of the data lines [Fig. 5A; D1]; a first switching device [Fig. 5A; 71b] that controls a supply of the display signal in the one data line, wherein the first switching device is electrically connected between the one data line and the first pixel electrode and that has a gate electrode; a second switching device [Fig. 5A; 71a] that is electrically connected between the gate electrode of the first switching device and one scan line [Fig. 5A; G1]; and a third switching device [Fig. 5A; 73] that is connected to the one data line and that controls a supply of the display signal to the second pixel electrode (see Column 3, Line 59 - Column 4, Line 36).

The Instant Application's Description of Prior Art and Kwon are analogous art, because they are both from the shared field of active matrix liquid crystal display devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the

substrate fabrication techniques of the Instant Application's Description of Prior Art to manufacture Kwon's multiplexed image structure, so as to reduce the necessary number of data lines.

Regarding claim 18, this claim is rejected by the reasoning applied in rejecting claim 8; furthermore, Kwon discloses a first pixel electrode [Fig. 5A; 73c] and a second pixel electrode [Fig. 5A; 71c] that are supplied with a display signal from a same data line [Fig. 5A; D1]; a first switching device [Fig. 5A; 73] that controls the supply of the display signal from the data line to the first pixel electrode, and that is driven based on a scan signal supplied from a first scan line [Fig. 5A; G1]; a second switching device [Fig. 5A; 71b] that controls a supply of the display signal from the data line to the second pixel electrode, and that is driven based on a scan signal supplied from a second scan line [Fig. 5A; G2] subsequent to the first scan line; and a third switching device [Fig. 5A; 71a] that is driven based on the scan signal supplied from the first scan line, and that controls ON and OFF of the second switching device (see Column 3, Line 59 - Column 4, Line 36).

### ***Response to Arguments***

9. Applicants' arguments filed 6 June 2007 (with respect to claims 1-3 and 13-15) have been fully considered but they are not persuasive.

In response to applicants' arguments against the references individually (e.g., Kim arguably not teaching "a wire having an exposed surface" and the Instant Application's Description of Prior Art arguably not teaching "the narrowest distance between the first wire and

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the second wire but not including the first and second wire is more than or equal to  $5\mu\text{m}$ "), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicants' argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the Instant Application's Description of Prior Art does not expressly disclose the narrowest distance between the first wire and the second wire but not including the first and second wire is more than or equal to  $5\mu\text{m}$ .

However, Kim does teach the narrowest distance [Fig. 6;  $W_2$ ] between a first wire [Fig. 6; 31-1] and a second wire [Fig. 6; 31-2] but not including the first and second wire is more than or equal to  $5\mu\text{m}$  (see Column 4, Lines 37-50).

The Instant Application's Description of Prior Art and Kim are analogous art, because they are both from the shared field of liquid crystal display devices.

Firstly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, so as to minimize signal distortion and delay in the

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resultant display. Wherein it is common knowledge in the art of electrical engineering and design that increasing spacing between electrical wires reduces signal crosstalk.

Secondly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results (e.g., increasing spacing between electrical wires reduces signal crosstalk) to one of ordinary skill in the art at the time of the invention.

Thirdly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because the substitution of one known wire distance for another would have yielded predictable results (e.g., increasing spacing between electrical wires reduces signal crosstalk) to one of ordinary skill in the art at the time of the invention.

Fourthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because the technique for improving (e.g., increasing spacing between electrical wires reduces signal crosstalk) a particular class of devices (e.g., wire structures / arrangements) was part of the ordinary skill in the art, in view of the teaching of the technique for improvement in other situations (e.g., Kim's extended wire distances).

Fifthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant



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Application's Description of Prior Art, because this particular known technique (i.e., extending wire distances more than or equal to  $5\mu\text{m}$ ) was recognized as part of the ordinary capabilities of one skilled in the art.

Sixthly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because a person of ordinary skill has good reason (e.g., increasing spacing between electrical wires reduces signal crosstalk) to pursue the known options within his or her technical grasp (i.e., setting wire distances as preferred -- to more than or equal to  $5\mu\text{m}$ , for example). If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

Seventhly, it would have been obvious to one of ordinary skill in the art at the time of invention to use Kim's wire distance between the first and second wires of the Instant Application's Description of Prior Art, because design incentives (e.g., increasing spacing between electrical wires reduces signal crosstalk) or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge (i.e., setting wire distances to more than or equal to  $5\mu\text{m}$ ) in a predictable manner.

A patent for a combination, which only unites old elements with no change in their respective functions, obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men. Where the combination of old elements performed a useful function, but it added nothing to the nature and quality of the subject matter already patented, the patent failed under §103. When a patent simply arranges old elements with

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each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.

Common sense teaches that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle. A person of ordinary skill is also a person of ordinary creativity, not an automaton. The question to be answered is whether the claimed invention is a product of innovation or merely the result of common sense, ordinary creativity, and ordinary skill.

If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability.

If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. One must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

A patent claim can be proved obvious merely by showing that the combination of elements was obvious to try. When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

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The problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

The substitution of known equivalent structures involves only ordinary skill in the art. In *re Fout* 213 USPQ 532 (CCPA 1982); In *re Susi* 169 USPQ 423 (CCPA 1971); In *re Siebentritt* 152 USPQ 618 (CCPA 1967); In *re Ruff* 118 USPQ 343 (CCPA 1958). When a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result (see *KSR INTERNATIONAL CO. v. TELEFLEX INC. ET AL.*, 550 U.S.--, 82 USPQ2d 1385 2007).

Applicants' arguments filed 6 June 2007 (with respect to claims 4-6, 8, 16-18, 21, and 22) have been considered but are moot in view of the new grounds of rejection. These new grounds of rejection were a result of the applicants' amendments and subject matter additions to independent claims 4 and 16.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

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*Conclusion*

10. Applicants' amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeff Piziali  
17 August 2007